CHAPTER-5

CONCLUSIONS
This report documented the exposure of human to toxic chemicals through plastic food containers. Although food packaging containers are strictly regulated by various regulatory agencies, the detection of chemicals which migrate from the plastic materials is still controversial. In this research, different simulated storage conditions were applied to assess the migration level of compounds from plastic materials into the stored commodity.

From the result of our study, it was concluded that the migration of chemicals in various food packaging materials exhibits high migration limit which were above allowed limit as per guidelines. In all result maximum amount of migration were occur at elevated condition (60±2°C for 2 hours) and at ambient condition (25±2°C for 24 hours) using different simulating solvents. As for elevated condition, it can be concluded that increase in temperature increases the leaching of chemicals. And for ambient condition, leaching is higher if foods remain in contact with polymer packaging. But few samples also shows leaching of chemicals above allowed limit at refrigerated condition (4±1°C for 72 hours), may be due to the storage of food for extended period of time. The trend of migration of chemicals into the stored commodity follows the order:

**Elevated condition > Ambient condition > Refrigerated condition**

Since estimation of migration from plastic materials were done by considering various physicochemical properties such as pH measurement, determination of antioxidants, buffering capacity, overall migration and heavy metals. Analysis of all these physicochemical properties exhibits different migration limit in various simulating solvents at three different storage conditions. Therefore, it is difficult or even impossible to correlate data from mentioned physicochemical properties leading to controversial explanation of result. So, in light of observation of our findings I like to recommend few suggestions.
1. Plastic materials should be prepared by strictly referring guidelines as provided by various regulatory agencies.

2. To ensure quality, the plastic materials should be checked by regulatory agencies.

3. Materials stored in plastic containers should be kept away from direct sunlight.

4. Reduce the use of material made up of plastic as possible.

5. Avoid heating food in plastic containers as it promotes leaching of chemicals.

6. Do not store food for extended periods of time in plastic containers.

7. Awareness of society about harmful effects of plastic food containers, in order to safeguard the health of a consumer.

8. Further studies should be carried out to study the nature of materials leaching from different types of plastics and the presence of such materials in stored pharmaceuticals, food, soft drinks, juices etc.